What is claimed is:

1. A switching power supply unit comprising:

a coil having a first terminal to which a DC input voltage is applied, a second terminal from which a first output voltage is outputted, and an intermediate tap from which a second output voltage is outputted;

a first switch whose on-off state is controlled by an on-off control signal, which is connected between said intermediate tap or said second terminal and a common potential point ;

a first rectifying-smoothing circuit, which is connected to said second terminal, for rectifying and smoothing said first output voltage to output a first DC output voltage obtained by converting said DC input voltage;

a second rectifying-smoothing circuit, which is connected to said intermediate tap, for rectifying and smoothing said second output voltage to output a second DC output voltage obtained by converting said input DC voltage; and

control means for outputting said on-off control signal in order to control at least one of said first and second DC output voltages to be a constant voltage.

2. The switching power supply unit according to claim 1, further comprising:

a second switch whose on-off state is controlled to apply said DC input voltage to said first terminal; and

a rectifier element, which is connected between said first terminal and said common potential point such that it has polarity to block said DC input voltage, for rectifying the DC input voltage,

wherein said control means outputs said on-off control signal such that said second switch is simultaneously switched with said first switch.

3. The switching power supply unit according to claim 2,

wherein said second switch is switched according to said on-off control signal and said first switch is switched according to a voltage at said first terminal.

4. A switching power supply unit comprising:

a first switch whose on-off state is controlled by an on-off control signal, which outputs a DC input voltage according to the on-off state;

a coil having a first terminal to which the DC input voltage is applied, a second terminal from which a first output voltage is outputted, and an intermediate tap from which a second output voltage is outputted;

a rectifier element, which is connected between said first terminal and a common potential point such that it has polarity to block said DC input voltage, for rectifying the DC input voltage;

a smoothing circuit, which is connected to said second terminal, for smoothing said first output voltage to output a first DC output voltage obtained by decreasing said DC input voltage;

a rectifying-smoothing circuit, which is connected to said intermediate tap, for rectifying and smoothing said second output voltage to output a second DC output voltage obtained by decreasing said DC input voltage; and

control means for outputting said on-off control signal in order to control at least one of said first and second DC output voltages to be a constant voltage.

5. A switching power supply unit comprising:

a first switch whose on-off state is controlled by an on-off control signal, which outputs a DC input voltage according to the on-off state;

a coil having a first terminal to which the DC input voltage is applied, a second terminal from which a first output voltage is outputted, and an intermediate tap from which a second output voltage is outputted;

a rectifier element, which is connected between said first terminal and a common potential point such that it has polarity to block said DC input voltage, for rectifying the DC input voltage;

a smoothing circuit, which is connected to said second terminal, for smoothing said first output voltage to output a first DC output voltage obtained by decreasing said DC input voltage;

a smoothing circuit, which is connected to said intermediate tap through a second switch that is tuned off or on substantially oppositely to the turning on or off of said first switch, for smoothing said second output voltage to output a second DC output voltage obtained by decreasing said DC input voltage; and

control means for outputting said on-off control signal in order to control at least one of said first and second DC output voltages to be a constant voltage.

6. The switching power supply unit according to claim 5, wherein said second switch is switched according to a voltage at said first terminal.

7. A switching power supply unit comprising:

a first switch whose on-off state is controlled by an on-off control signal, which outputs a DC input voltage according to the on-off state;

a coil having a first terminal to which the DC input voltage is applied, a second terminal from which a first output voltage is outputted, and an intermediate tap connected to a common potential point;

a first rectifying-smoothing circuit, which is connected to said second terminal, for rectifying and smoothing said first output voltage to output a DC output voltage obtained by converting said DC input voltage; and

control means for outputting said on-off control signal in order to control said DC output voltage to be a constant voltage.

8. The switching power supply unit according to claim 7, further comprising:

a second rectifying-smoothing circuit, which is connected to said first terminal, for outputting a voltage with reversed polarity of the DC output voltage outputted from said first rectifying-smoothing circuit,

wherein said first rectifying-smoothing circuit outputs a DC output voltage of the same polarity as the polarity of said DC input voltage, and said second rectifying-smoothing circuit outputs a DC output voltage of different polarity as the polarity of said DC input voltage.

9. A switching power supply unit comprising:

a first switch whose on-off state is controlled by an on-off control signal, which outputs a DC input voltage according to the on-off state;

a coil having a first terminal to which the DC input voltage is applied, a second terminal connected to a common potential point, and an intermediate tap from which a first output voltage is outputted;

a first rectifying-smoothing circuit, which is connected to said intermediate tap, for rectifying and smoothing said first output voltage to output a first DC output voltage of polarity different from the polarity of said DC input voltage;

a second rectifying-smoothing circuit, which is connected to said first terminal, for rectifying and smoothing said second output voltage to output a second DC output voltage of polarity different from the polarity of said DC input voltage; and

control means for outputting said on-off control signal in order to control at least one of said first and second DC output voltages to be a constant voltage.

10. A switching power supply unit comprising:

a first switch whose on-off state is controlled by an on-off control signal, which outputs a DC input voltage according to the on-off state;

a coil having a first terminal to which the DC input voltage is applied, a second terminal from which a first output voltage is outputted, and an intermediate tap from which a second output voltage is outputted;

a rectifier element, which is connected between said first terminal and a common potential point such that it has polarity to block said DC input voltage, for rectifying the DC input voltage;

a smoothing circuit, which is connected to said intermediate tap, for smoothing said second output voltage to output a first DC output voltage obtained by decreasing said DC input voltage;

a rectifying-smoothing circuit, which is connected to said second terminal, for rectifying and smoothing said first output voltage to output a second DC output voltage higher than said first DC output voltage outputted from said smoothing circuit; and

control means for outputting said on-off control signal in order to control said first DC output voltage outputted from said smoothing circuit to be a constant voltage.

11. The switching power supply unit claim 1,

wherein said coil has one or more further intermediate taps and wherein a DC output voltage obtained by converting said DC input voltage is output from the intermediate tap at least through a smoothing circuit.

12. The switching power supply unit claim 4,

wherein said coil has one or more further intermediate taps and wherein a DC output voltage obtained by converting said DC input voltage is output from the intermediate tap at least through a smoothing circuit.

13. The switching power supply unit claim 5,

wherein said coil has one or more further intermediate taps and wherein a DC output voltage obtained by converting said DC input voltage is output from the intermediate tap at least through a smoothing circuit.

14. The switching power supply unit claim 7,

wherein said coil has one or more further intermediate taps and wherein a DC output voltage obtained by converting said DC input voltage is output from the intermediate tap at least through a smoothing circuit.

15. The switching power supply unit claim 9,

wherein said coil has one or more further intermediate taps and wherein a DC output voltage obtained by converting said DC input voltage is output from the intermediate tap at least through a smoothing circuit.

16. The switching power supply unit claim 10, wherein said coil has one or more further intermediate taps and wherein a DC output voltage obtained by converting said DC input voltage is output from the intermediate tap at least through a smoothing circuit.